

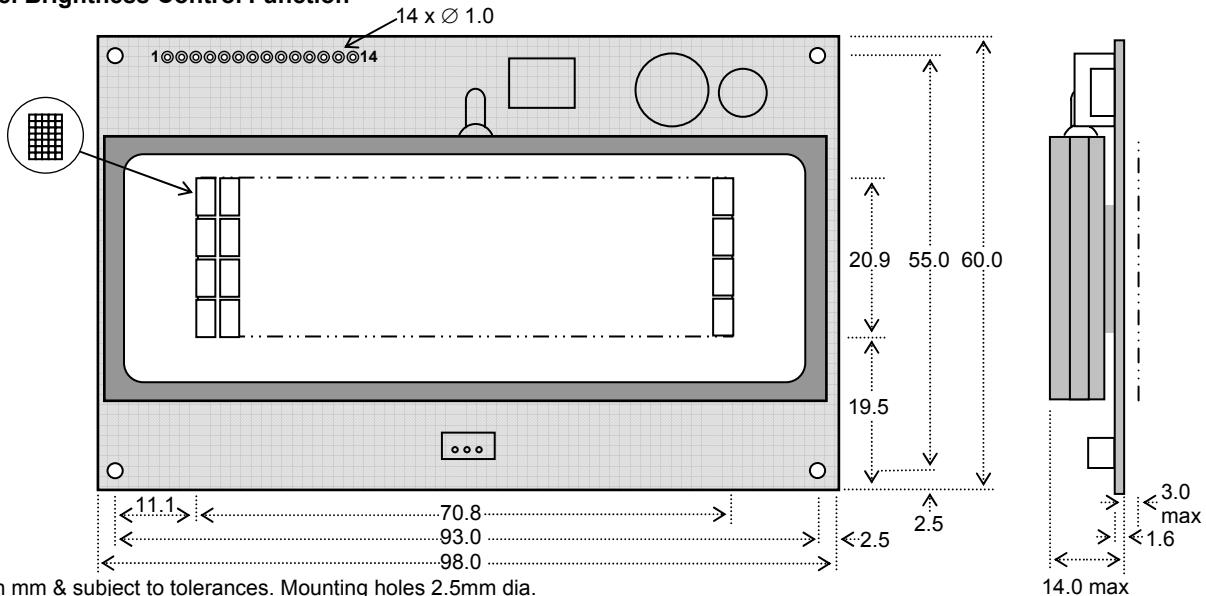
# 5X7 Dot Character VFD Module

CU20045-UW5J

- 4 X 20 Characters 5mm High
- LCD Compatible Design
- Operating Temp -40°C to +85°C
- Single 5V Supply with Power Save Mode
- High Brightness Blue Green Display
- Selectable 4/8 bit M68/i80 Interface
- ASCII + Extended Character Font
- 8 User Definable Character RAM
- 4 Level Brightness Control Function

The module includes the Vacuum Fluorescent Display glass, driver and micro-controller ICs with refresh RAM, character generator and interface logic.

The high speed 8 bit parallel interface is 5V CMOS compatible suitable for connection to a host CPU bus which can be set to M68 or i80 series interface by a solder link on the module. Brightness control and power down functions are provided. A full data sheet is available.



Dimensions in mm & subject to tolerances. Mounting holes 2.5mm dia.

## ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	Vcc	5.0VDC +/- 5%	GND=0V
Power Supply Current	Icc	275mAADC typ.	Vcc=5V
Logic High Input	Vih1	Vss+2.0VDC min.	Vcc=5V
Logic Low Input	Vil1	Vss+0.8VDC max	Vcc=5V
Logic High Output	VOH	Vcc-0.5VDC min.	IOH = 4.0mA
Logic Low Output	VOL	Vss+0.5VDC max	IOL = 4.0mA

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x Icc.  
The Icc current is 10mA maximum while in power down mode.

## OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Character Size/Pitch (XxY mm)	2.4 x 4.7/3.6 x 5.4
Dot Size/Pitch (XxY mm)	0.4 x 0.5/0.5 x 0.7
Luminance	700 cd/m² (204 fL) Typ.
Colour of Illumination	Blue-Green (Filter for more colours)
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +85°C
Operating Humidity (non condensing)	20 to 80% RH @ 25°C

## SOFTWARE COMMANDS

Instruction	R/W	RS	D0-D7
Clear Display	L	L	01H
Cursor Return Home	L	L	02H-03H
Entry Mode Set	L	L	04H-07H
Display ON/OFF	L	L	08H-0FH
Cursor/Display Shift	L	L	10H-1FH
Function Set	L	L	20H-3FH
Brightness Set	L	H	00H-03H
Set CG RAM Addr.	L	L	40H-7FH
Set DD RAM Addr.	L	L	80H-E7H
Read BUSY/Addr.	H	L	00H-FFH
Write Data to RAM	L	H	00H-FFH
Read Data from RAM	H	H	00H-FFH

## PIN CONNECTIONS

Pin	Sig	Pin	Sig
1	GND	2	VCC
3	(FNC)	4	RS
5	R/W #	6	E #
7	D0	8	D1
9	D2	10	D3
11	D4	12	D5
13	D6	14	D7

## TIMING PARAMETERS (min)

(E)nable Cycle Time	500ns
(E)nable Pulse Width	230ns
Hold after (E)nable	10ns

## CHARACTER FONT

H <sub>EX</sub>	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
01	0	Q	O	P	~	P	A	F	~	9	3	8	P	~	0	
02	!	1	A	Q	a	q	A	e	~	7	4	8	q	~	1	
03	"	2	B	R	b	r	A	E	~	4	7	5	B	~	2	
04	#	3	C	S	c	s	R	J	U	E	6	~	3	~	4	
05	\$	4	D	T	d	t	A	~	~	I	T	M	0	~	5	
06	%	5	E	U	e	u	E	0	~	オ	ナ	1	U	~	6	
07	&	6	F	U	f	u	D	+	フ	カ	ニ	3	P	~	7	
08	*	7	G	W	w	g	8	+	ア	フ	ス	7	9	~	8	
09	#	8	H	X	x	h	9	1	4	3	リ	5	×	~	9	
0A	^	9	I	Y	y	i	9	~	シ	カ	ト	ル	~	~	0	
0B	~	0	J	Z	z	0	4	~	コ	ヒ	レ	ジ	~	~	1	
0C	+	1	K	C	c	k	0	5	オ	タ	エ	5	~	~	2	
0D	,	2	L	!	!	l	1	~	フ	ワ	ワ	~	3	~	3	
0E	=	3	M	J	j	m	2	~	ア	フ	ス	4	~	4	~	
0F	+	4	N	^	^	n	~	~	タ	ト	ト	5	~	5	~	

## JUMPER LINKS

### # Interface M68/i80

When jumper link JP9 is soldered, these inputs change to i80 series CPU control lines.

Pin 5= /WR Pin 6= /RD

### Pin 3 (Fnc) Input

This is normally open circuit. If pads JP2.1 and JP2.2 are linked. Pin 3 = /Reset.

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